



Managing the knowledge created by the users through Geospatial User Feedback system. The NEXTGEOSS use case

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First approach to metadata was based on producer's point of view, since producers were responsible for documenting and sharing metadata about their products. Since 2012 (started in EU FP7 GeoViQua project), the Geospatial User Feedback approach described the user perspective on datasets/services (GUF, OGC standard in 2016). In the past users of the data gained knowledge about and with the data, but they lacked the means to easily and automatically share this knowledge in a formal way.

In the EU H2020 NextGEOSS project, the NiMMbus system has been matured as an interoperable solution to manage and store feedback items following the OGC GUF standard. NiMMbus can be used as a component for any geospatial portal, and, so far, has been integrated in several H2020 project catalogues or portals (NextGEOSS, ECOPotential, GeoEssential and GroundTruth2.0).

User feedback metadata complements producer's metadata and adds value to the resource description in a geospatial portal by collecting the knowledge gained by the user while using the data for the purpose originally foreseen by the producer or an innovative one.

The current GEOSS platform provide access to endless data resources. But to truly assist decision making, GEOSS wants to add a knowledge base. We believe that the NiMMbus system is a significant NextGEOSS contribution in this direction.

This communication describes how to extend the GUF to provide a set of knowledge elements and connect them to the original data creating a network of knowledge. They can be citations (publications and policy briefs), quality indications (QualityML vocabulary and ISO 19157), usage reports (code and analytical processes), etc. The NiMMbus offers tools to create different levels of feedback starting with comments, providing citations or extract quality indicators for the different quality classes (positional, temporal and attribute accuracy, completeness, consistency) and share them to other users as part of the user feedback and usage report. Usage reports in GUF standards can be extended to include code fragments that other users can apply to reproduce a previous usage. For example, in ECOPotential Protected Areas from Space map browser (continues on H2020 e-Shape project) a vegetation index optimum to observe phenological blooms can be encoded by a user in the layer calculation using a combination of original Sentinel-2 bands. The portal stores that in a JavaScript code (serialized as JSON) that describes

which layers and formula were used. Once a user validated the new layer, can decide to make it available to everyone by publishing it as an open source JavaScript code in the NiMMbus system. From then on, any other user of the portal can import it and use it. As the usage description is a full feedback item, the user creating the dynamic layer can also describe any other related information such as comments or advertise a related publication.

The system moves the focus to sharing user of the data and complements the producers documentation with the richness of the knowledge that user gain in their data driven research. In addition to augment GEOSS data the system enables a social network of knowledge.